	Application No.	**Applicant(s)**
Notice of Allowability	10/658,171	GREENE ET AL.
	Examiner	**Art Unit**	
	Phu K. Nguyen	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the correspondence filed 9/8/2003.*

2. ☒ The allowed claim(s) is/are *18-111.*

3. ☒ The drawings filed on *08 September 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

       1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
    Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

Best Available Copy

EXAMINER'S AMENDMENT:

In claim 29, line 1, replace "29" by –28--.

NOTICE OF ALLOWANCE:

The following is an examiner's statement of reasons for allowance:

A method for conservative stencil culling in a graphics pipeline. comprising: maintaining <u>stencil values for regions at a plurality of levels</u> of an image pyramid; <u>determining whether the stencil value for a region at one or more coarser levels is valid</u>; and <u>performing conservative stencil culling on the region utilizing the stencil value at the coarser level</u> if the stencil value at the coarser level is valid.

A data structure comprising: <u>a valid indicator object indicating whether all stencil values of a region are equal to each other</u>; and a stencil value object including <u>a stencil value equal to the stencil values of the region</u> if all of the stencil values of the region are equal to each other.

A method for multiple-pass rendering in a plurality of pipelines using conservative occlusion culling, comprising: during a first pass in a first pipeline, passing objects from an input stream to <u>a culling stage</u> of the first pipeline for creating an occlusion image in a first depth buffer requiring a first amount of storage; and during a second pass in a second pipeline, sending the objects to a culling stage of the second pipeline for <u>conservatively culling occluded objects</u> utilizing the occlusion image, <u>and passing to a renderer remaining objects</u>, wherein the renderer requires a second depth buffer with a second amount of storage greater than the first amount of storage.

A system for avoiding processing in a multi-pass rendering algorithm in a graphics pipeline, comprising: means for a first pass including logic for determining whether at least a portion of the object has been culled, and logic for storing <u>visibility information indicating whether the at least portion of the object has been culled</u>, and means for a second pass including: <u>logic for conditionally skipping processing in at least a portion of the graphics pipeline</u> based on the visibility information.

A system for avoiding processing in a multi-pass rendering algorithm in a graphics pipeline, comprising: means for a first pass including logic for <u>determining whether a last object processed within an entity of a screen is entirely visible</u>, and logic for storing status information indicating whether the last object processed within the entity of the screen is entirely visible; and means for a second pass including logic for, when rendering each object within the entity of the screen, <u>avoiding writing and reading z-values to and from a z-buffer if the status information indicates that the last object processed within the entity of the screen was entirely visible</u>.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (703)305 -9796. The examiner can normally be reached on M-F 8:00-4:30.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu K. Nguyen
August 3, 2004